

Patent
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In the claims:

1. (Currently Amended) A composition comprising a purified Gux1-peptide protein with catalytic activity of an exoglucanase, said Gux1-peptide protein comprising a glycoside hydrolase 48 (GH48) family-catalytic domain having about 95% percent sequence identity with comprising residues 359-418 of SEQ ID NO. 5, a carbohydrate binding domain (CBD) type III, and a carbohydrate binding domain (CBD) type II.
2. (Currently Amended) The composition of claim 1 wherein the Gux1-peptide protein is further defined as comprising a linker and a signal peptide.
3. (Currently Amended) The composition of claim 1 wherein the GH48 catalytic domain of the Gux1-peptide is further defined as having a length of about 637 to about 643 amino acids.
4. (Currently Amended) The composition of claim 1 wherein the carbohydrate binding domain (CBD) type III of the Gux1-peptide is further defined as having a length of about 150 to about 156 amino acids.
5. (Currently Amended) The composition of claim 1 wherein the carbohydrate binding domain (CBD) type II of the Gux1-peptide is further defined as having a length of about 95 amino acids to about 105 amino acids in length.
6. (Currently Amended) A composition comprising a purified-peptide-protein with catalytic activity of an exoglucanase, said peptide protein comprising a glycoside hydrolase 48 (GH48)-catalytic domain classified in family glycoside hydrolase-48 (GH48) having the sequence of SEQ ID NO: 5, a carbohydrate binding domain (CBD) type III, and a carbohydrate binding domain (CBD) type II.

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7. (Previously Presented) The composition of claim 6 wherein the carbohydrate binding domain (CBD) type III is further defined as having the sequence of SEQ ID NO: 4.
8. (Previously Presented) The composition of claim 6 wherein the carbohydrate binding domain (CBD) type II is further defined as having the sequence of SEQ ID NO: 7.
9. (Currently Amended) The composition of claim 1 further defined as comprising, in combination, a the sequence of SEQ ID NO: 4, SEQ ID NO: 5, and SEQ ID NO: 7.
10. (Currently Amended) An isolated protein with catalytic activity of an exoglucanase peptide having the sequence of SEQ ID NO: 1.
11. (Currently Amended) The protein peptide of claim 10 further defined as being encoded by a polynucleotide having the sequence of SEQ ID NO: 2.
- 12-13. (Cancelled)
14. (Currently Amended) The composition of claim 1 wherein the Gex1 protein is further defined as comprising an amino acid sequence having at least about 9590% sequence identity to SEQ ID NO: 5.
- 15-16. (Cancelled).
17. (Currently Amended) The composition of claim 6 wherein the carbohydrate binding domain (CBD) type II is further defined as comprising an amino acid sequence having at least about 9598% sequence identity to SEQ ID NO: 7.

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18. (Currently Amended) The composition of claim 6 wherein the carbohydrate binding domain (CBD) type III is further defined as comprising an amino acid sequence having ~~at least~~ about 9598% sequence identity to SEQ ID NO: 4.
19. (Currently Amended) The composition of claim 6 wherein the protein peptide further comprises a linker domain having an amino acid sequence with ~~at least~~ about 9598% sequence identity to SEQ ID NO: 6.
20. (Currently Amended) The composition of claim 6 wherein the protein peptide is further defined as comprising an amino acid sequence having ~~at least~~ about 9598% sequence identity to SEQ ID NO: 1.
21. (Currently Amended) The composition of claim 6 wherein the protein peptide is further defined as comprising an amino acid sequence encoded by a nucleic acid sequence that has ~~at least~~ about 9590% identity to the nucleic acid sequence of SEQ ID NO: 2.
22. (Cancelled)
23. (Currently Amended) The composition of claim 6, wherein the protein peptide further comprises a peptide tag.
24. (Previously Presented) The composition of claim 23 wherein the peptide tag is 6-His (SEQ ID NO: 8), thioredoxin, hemagglutinin, GST, or OmpA signal sequence tag.
25. (Currently Amended) The composition of claim 6 wherein the protein peptide further comprises a substrate targeting moiety.
- 26-27. (Cancelled)

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28. (Currently Amended) An isolated polypeptide comprising:
- a) a sequence of SEQ ID NO: 4 or its variants that are about 95% identical to SEQ ID NO: 4 and possessing carbohydrate binding activity;
 - b) a sequence of SEQ ID NO: 5 or its variants that are about 95% identical to SEQ ID NO: 5 and possessing catalytic activity of an exoglucanase;
 - ~~c) a sequence of SEQ ID NO: 6 or its variant;~~
 - d) a sequence of SEQ ID NO: 7 or its variant that are about 95% identical to SEQ ID NO: 7 and possessing carbohydrate binding activity; or
 - e) a sequence of SEQ ID NO: 1 or its variant that are about 95% identical to SEQ ID NO: 1 and possessing catalytic activity of an exoglucanase; or
 - ~~f) an amino acid sequence having at least 90% sequence identity with the amino acid sequence of a), b), c), d), or e).~~
29. (Cancelled)
30. (Previously Presented) A fusion protein comprising the polypeptide of claim 28 and a heterologous peptide.
31. (Previously Presented) The fusion protein of claim 30, wherein the heterologous peptide is a substrate targeting moiety.
32. (Previously Presented) The fusion protein of claim 30, wherein the heterologous peptide is a peptide tag.
33. (Previously Presented) The fusion protein of claim 32, wherein the peptide tag is 6-His (SEQ ID NO: 8), thioredoxin, hemagglutinin, GST, or OmpA signal sequence tag.

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34. (Previously Presented) The fusion protein of claim 30, wherein the heterologous peptide is an agent that promotes polypeptide oligomerization.

35. (Previously Presented) The fusion protein of claim 34, wherein the agent is a leucine zipper.

36-43 (Cancelled)

44. (Currently amended) A composition comprising the polypeptide molecule of claim 28 29 and a carrier.

45. (Currently amended) A composition comprising the polypeptide molecule of claim 30 and a carrier.

46-68 (Cancelled)

69. (Previously Presented) The composition of claim 6 further comprising a carrier.

70. (Currently Amended) The composition of claim 6 wherein the ~~peptide~~ protein is further defined as comprising a heterologous peptide or protein.

71. (Previously Presented) The composition of claim 70 wherein the heterologous peptide or protein comprises an immunoglobulin.

72. (Previously Presented) The composition of claim 70 wherein the heterologous peptide comprises a histidine tag.

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73. (Previously Presented) The composition of claim 70 wherein the heterologous peptide comprises a leucine zipper.

74. (Previously Presented) The composition of claim 70 wherein the heterologous peptide comprises a fusion protein.

75. (Currently Amended) A composition comprising a protein with catalytic activity of an exoglucanase purified Gux1 peptide, said protein Gux1 peptide comprising a catalytic domain of an exoglucanase classified in family glycoside hydrolase 48 (GH48) having an amino acid sequence about 95% identical to of SEQ ID NO. 5, a carbohydrate binding domain (CBD) type III having an amino acid sequence about 95% identical to SEQ ID NO. 4, and a carbohydrate binding domain (CBD) type II having an amino acid sequence about 95% identical to SEQ ID NO. 7.

76 (Currently Amended) The composition of claim ~~6~~ 75 wherein the carbohydrate binding domain (CBD) type III ~~is further defined as~~ has the sequence of SEQ ID NO: 4.

77. (Currently Amended) The composition of claim ~~6~~ 76 wherein the carbohydrate binding domain (CBD) type II ~~is further defined as~~ has the sequence of SEQ ID NO: 7.

78. (Currently amended) The composition of claim 6 further defined as comprising, in combination, a the sequence of SEQ ID NO: 4, SEQ ID NO: 5, and SEQ ID NO: 7 in that particular order.

79. (Currently amended) A purified polypeptide with catalytic activity of an exoglucanase having a sequence with ~~at least~~ about 95% identity to SEQ ID NO: 1.

80. (Currently amended) A purified polypeptide with catalytic activity of an exoglucanase having a sequence with ~~at least~~ about 98% identity to SEQ ID NO: 1.

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81. (Currently Amended) A composition comprising a purified polypeptide with catalytic activity of an exoglucanase, said polypeptide comprising residues 359-418 of SEQ ID NO. 5.
82. (Previously Presented) The composition of claim 81 wherein said polypeptide has ten or fewer conservative amino acid substitutions in SEQ ID NO. 5.
83. (Previously Presented) The composition of claim 82 wherein said polypeptide has five or fewer conservative amino acid substitutions in SEQ ID NO. 5.
84. (Previously Presented) The composition of claim 81 wherein said polypeptide has five or fewer conservative amino acid substitutions in residues 359-418 of SEQ ID NO. 5.

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